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10/525,705	02/24/2005	Rainer Mathes	Q86114	5900

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EXAMINER

GARCIA, ERNESTO

ART UNIT	PAPER NUMBER
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3679

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06/06/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/525,705	<b>Applicant(s)</b> MATHES ET AL.	
	<b>Examiner</b> Ernesto Garcia	<b>Art Unit</b> 3679	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007 and 06 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/28/07</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Drawings***

The drawings were received on April 6, 2007. These drawings are acceptable.

#### ***Claim Objections***

Claims 5, 10, 11, and 15 are objected to because of the following informalities:

Regarding claim 5, "screw hole" in line 4 should be --through hole--;

regarding claim 10, "rotates" should be --is rotatable--;

regarding claim 11, --a-- should be inserted before "hole" in line 6;

regarding claim 15, "screw hole" in line 3 should be --through hole--. Appropriate correction is required. For purposes of examining the instant invention, the examiner has assumed these corrections have been made.

***Claim Rejections - 35 USC § 112***

Claims 1-9 and 11-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, there is an inconsistency between the language in the preamble and a certain portion in the body of the claim, thereby making the scope of the claims unclear. The preamble clearly indicated that the fastener system is “for fastening a vacuum pump (1) to a wall (2) of a stationary structure (3)”. However, the body of the claim positively recites “the wall of the stationary structure”, e.g., “tapped holes provided in the wall of the stationary structure”. Accordingly, is the combination or subcombination being claimed? Appropriate correction, clarification, or both is required. For purposes of this Office action, the examiner has considered the wall of the stationary structure as being part of the fastener system as a combination.

Further, the limitation “coaxial” in line 3 is a relative term, which renders the claim indefinite. In other words, relative to what is the annular flange coaxial to now that the flange is being positively claimed.

Regarding claim 2, it is unclear what shape is required in lines 2-4, other than being cylindrical as recited in claim 1, lines 9-10, to allow the proximal segment during

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“bending of the screw shank until the screw shank comes into abutment against the side wall of the proximal segment of the through hole”.

Regarding claim 11, the recitation “an opening of an outermost opening of the hole” in lines 14-15 is misdescriptive and/or inaccurate since an outermost opening, which is already an opening, cannot have another opening. This limitation is indicating that the opening of the hole has another opening.

Regarding claim 12, the recitation “an outermost opening” in line 2 makes unclear whether this is another outermost opening of the hole than that recited in claim 11, line 14.

Regarding claims 3-9 and 18, the claims depend from claim 1 and therefore are indefinite.

Regarding claims 13-18, the claims depend from claim 11 and therefore are indefinite.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 11-14, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Potts, 2,748,578.

Regarding claim 1, Potts discloses, in Figure 1, a fastener system comprising a coaxial annular flange **16**, tapped holes **A1** (see marked-up attachment), through holes **A2**, and screws **32**. The tapped holes **A1** are provided in a wall of a stationary structure **30**. The through holes **A2** are provided in the flange **16**. The screws **32** have heads fitted so that their shanks pass through the through holes **A2** and are screwed into the tapped holes **A1**. Each of the through holes **A2** comprises a distal segment **A3** followed by an enlarged proximal segment **A4**. The distal segment **A3** is cylindrical and the enlarged proximal segment **A4** is cylindrical about the same axis and is adjacent to a corresponding one of the tapped holes **A1**.

Regarding claim 2, the proximal segment **A4** of the through hole has a shape. A maximum lateral offset between the through hole and the corresponding tapped hole is greater than the radius of the screw shank. The proximal segment **A4** is of a length greater than the length of the distal segment **A3**.

Regarding claim 11, Potts discloses, in Figures 1 and 4, a faster system comprising a screw **32**, a flange **16**, and a stationary structure **30**. The screw comprises a head and a shank. The flange **16** comprises a through hole **A2**. The through hole **A2** comprises a distal segment **A3**, and a proximal segment **A4**. The stationary structure **30** has a hole **A1**. A cross-sectional area of the distal segment **A3** taken in a direction perpendicular to a central axis of the through hole **A2** is smaller than that of the proximal segment **A4**. The proximal segment **A4** provides a gap (when the shank is being inserted). The proximal segment **A4** has an opening sized differently from an outermost opening of the hole **A1** in the stationary structure **30**.

Regarding claim 12, the proximal segment **A4** has an opening greater than the outermost opening of the hole **A1**.

Regarding claim 13, a distance measured in a radial direction of the through hole **A2** between an inside wall of the proximal segment **A4** and an opposing outside surface of the screw shank when the screw is fully inserted in the through hole **A2** is greater than a radius of the screw shank. Applicants should note that this claim does not

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indicate that the screw has to be sitting or abutting. Merely inserting the shank without being inserted in the hole in the stationary structure anticipates the subject matter because the shank in the through hole is considered to be "fully inserted" during insertion.

Regarding claim 14, the proximal segment **A4** has a length greater than a total length of the distal segment **A3**.

Regarding claim 18, each of the proximal segments **A4** has an opening greater than an outermost opening of the tapped holes **A1**.

Claims 1, 2, 5-7, and 9-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Okudera et al., 6,824,349.

Regarding claim 1, Okudera et al. disclose, in Figure 4, a fastener system comprising a coaxial annular flange **1a**, tapped holes **14a**, through holes **30**, and screws **15**. The tapped holes **14a** are provided in a wall of a stationary structure **14**. The through holes **30** are provided in the coaxial annular flange **1a**. The screws **15** have heads **15a** fitted so that their shanks **15b** pass through the through holes **30** and are screwed into the tapped holes **14a**. Each of the through holes **30** comprises a distal segment **30a** followed by an enlarged proximal segment **30b**. The distal segment **30a** is



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cylindrical and the enlarged proximal segment **30b** is cylindrical about the same axis and adjacent to a corresponding one of the tapped holes **30**.

Regarding claim 2, the proximal segment **30b** has a shape, i.e., the same cylindrical shape recited in claim 1. The proximal segment **30b** is of a length greater than the length of the distal segment.

Regarding claims 5 and 15, the screw shank **15b**, comprises, adjacent to the head **15a** a smooth shank segment (see Figure 2) of diameter considerably smaller than the diameter of the distal segment **30a** and followed to a free end by a threaded segment (the threaded portion).

Regarding claims 6 and 16, the diameter of the smooth shank segment is less than or equal to 80% of the diameter of the distal segment.

Regarding claims 7 and 17, the proximal segment **30b** is of a length greater than or equal to 1.5 times the length of the distal segment.

Regarding claim 9, an elastomer damper material **31** is inserted in a space between the shank **15a** and the through hole **30** of the flange **1a**.

Regarding claim 10, Okudera et al. disclose, in Figures 1 and 4, a vacuum pump comprising a pump body **1**, a rotor **7**, an annular flange **1a**, through holes **30**, and screws **15**. The rotor **7** is rotatable in the pump body **1**. The annular flange **1a** is provided in the pump body **1**. The tapped holes **14a** are provided in a wall of a stationary structure **14**. The through holes **30** are provided in the coaxial annular flange **1a**. The screws **15** have heads **15a** fitted so that their shanks **15b** pass through the through holes **30** and are screwed into the tapped holes **14a**. Each of the through holes **30** comprises a distal segment **30a** followed by an enlarged proximal segment **30b**. The distal segment **30a** is cylindrical and the enlarged proximal segment **30b** is cylindrical about the same axis and adjacent to a corresponding one of the tapped holes **30**.

Regarding claim 11, Okudera et al. disclose, in Figures 1 and 4, a faster system comprising a screw **15**, an annular flange **1a**, and a stationary structure **14**. The screw comprises a head **15a** and a shank **15b**. The flange **1a** comprises a through hole **30**. The through hole **30** comprises a distal segment **30a**, and a proximal segment **30b**. The stationary structure **14** has a hole **14a**. A cross-sectional area of the distal segment **30a** taken in a direction perpendicular to a central axis of the through hole **30** is smaller than that of the proximal segment. The proximal segment provided a gap. The proximal segment has an opening sized differently from an opening of the outermost opening of the hole **14a** in the stationary structure **14**.

Regarding claim 12, the proximal segment 30b has an opening greater than an outermost opening of the hole 14a in the stationary structure 14.

Regarding claim 13, a distance measured in a radial direction of the through hole 30 between an inside wall of the proximal segment and an opposing outside surface of the screw shank when the screw is fully inserted in the through hole 30 is greater than a radius of the screw shank 15b.

Regarding claim 14, the proximal segment of the through hole 30 is of a length greater than a total length of the distal segment of the through hole 30.

Regarding claim 18, each of the proximal segments 30b has an opening greater than an outermost opening of the hole 14a in the stationary structure 14.

Applicants cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

***Claim Rejections - 35 USC § 103***

Claims 5, 6, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potts, 2,748,578, in view of Allart et al., 5,220,854.

Regarding claims 5 and 15, Potts, as discussed, fails to disclose the screw shank comprises, adjacent to the head, a smooth shank segment of diameter considerably smaller than the diameter of the distal segment A3 and followed to a free end by a threaded segment. Allart et al. teach, in Figure 1, a screw shank comprising, adjacent to a head, a smooth shank segment of diameter that is considerably smaller than the diameter of a distal segment of a through hole and the smooth shank is followed to a free end by a threaded segment to prevent from threading the shank all the way towards the head since such design will save manufacturing costs and time of manufacturing. Therefore, as taught by Allart et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a smooth shank segment, adjacent to the head, of diameter smaller than the diameter of the distal segment A3 of Potts and the smooth shank is followed to a free end by a threaded segment to save manufacturing costs and time instead of threading the shank all the way up to the head of the screw.

Regarding claims 6 and 16, given the modification, it would have been obvious matter of design choice to design the diameter of the smooth shank segment less than or equal to 80% of that of the distal segment since such clearance J, as taught by Allart et al. (Fig. 5), prevents the thread from being damaged. Therefore, as taught by Allart et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the smooth shank segment with a diameter less than or

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equal to 80% of that of the distal segment to prevent the thread from being damage while being inserted in the through hole.

Regarding claim 17, Potts discloses the proximal segment **A4** having a length greater than or equal to 1.5 time a length of the distal segment **A3**.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okudera et al., 6,824,349.

Regarding claim 8, Okudera et al., as discussed, fail to disclose a washer interposed between the head and an adjacent outside face of the flange **1a**. Applicants are reminded that putting a washer in threaded connection is well known in the art to prevent the bolt from being loosen. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to interpose a washer between the head and the adjacent outside face of the flange to prevent the bolt from being loosen.

Claims 1, 3, 4, 9, and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson, 2,560,413, in view of Weis, 1,831,430.

Regarding claim 1, Carlson discloses, in Figures 1 and 4, a faster system comprising a screw **16**, a flange **A1** (see marked-up attachment), and a stationary

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structure **14**. The screw comprises a head and a shank. The flange **A1** comprises a through hole **22**. The through hole **22** comprises a distal segment **28**, and a proximal segment **A2**. The stationary structure **14** has tapped holes **26**. However, the flange **A1** in Carlson is not annular any respect but appears square or does the flange include more than one through hole **22**. Weis teaches, in Figure 4, a flange that is annular as part of a design consideration instead of being any other shape than square since rounding the flange to be annular provides for an increase in material toward an outside wall which will handle more stresses than merely being square. Therefore, as taught by Weis, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the flange annular to provide more material toward the outside wall to handle more stresses during operation of the connection. Further, Applicants are reminded that mere duplication of the essential working parts of a device involves only routine skill in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide more than one through hole in the flange **A1** of Carlson so that the screws provide twice as much clamping force than using one through hole in the flange **A1**. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claim 3, the proximal segment **A2** includes a cylindrical proximal portion **A4** connected to the distal segment **28** by a circularly frustoconical distal portion **A3**.

Regarding claim 4, the frustoconical portion **A3** has a cone half-angle equal to about 60 degrees.

Regarding claim 9, Carlson discloses the system further comprises a material inserted in a space between the shank and the through hole. However, the material is not an elastomer damper (as seen by the cross-section). However, Carlson suggests, in column 4, lines 10-16, any material possessing qualities of flowing and conforming to the bores can be used). Thus, one can use rubber, an elastomer damper material, since rubber possesses qualities of flowing and conforming to bores when being compressed. Therefore, as taught by Carlson, it would have been obvious to one of ordinary skill in the art at the time the invention was made to choose rubber, an elastomer damper material, since rubber flows and conforms to bores when being compressed.

Regarding claim 11, Carlson discloses, in Figures 1 and 4, a faster system comprising a screw **16**, a flange **A1** (see marked-up attachment), and a stationary structure **14**. The screw comprises a head and a shank. The flange **A1** comprises a through hole **22**. The through hole **22** comprises a distal segment **28**, and a proximal segment **A2**. The stationary structure **14** has a hole **26**. A cross-sectional area of the distal segment **28** taken in a direction perpendicular to a central axis of the through hole **22** is smaller than that of the proximal segment **A2**. The proximal segment **A2** provides a gap. The proximal segment **A2** has an opening sized differently from an outermost

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opening of the hole **26** in the stationary structure **14**. However, the flange A1 in Carlson is not annular in any respect but appears square. Weis teaches, in Figure 4, a flange that is annular as part of a design consideration instead of being any other shape than square since rounding the flange to be annular provides for an increase in material toward an outside wall which will handle more stresses than merely being square. Therefore, as taught by Weis, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the flange annular to provide more material toward the outside wall to handle more stresses during operation of the connection.

Regarding claim 12, the proximal segment **A2** has an opening greater than an outermost opening of the hole **26** in the stationary structure **14**.

Regarding claim 13, a distance measured in a radial direction of the through hole **22** between an inside wall of the proximal segment **A2** and an opposing outside surface of the screw shank when the screw is fully inserted in the through hole **22** is greater than a radius of the screw shank.

Regarding claim 15, the screw shank comprises, adjacent to the head, a smooth shank segment of diameter considerably smaller than the diameter of the distal segment **28** and followed to a free end by a threaded segment.



Regarding claim 16, the diameter of the smooth shank segment is less than or equal to 80% of that of the distal segment **28**.

Regarding claims 14 and 17, Carlson, as modified, fails to disclose the proximal segment **A2** having a length greater than or equal to 1.5 times a length of the distal segment **28**. Applicants are reminded that a change in size is generally recognized as being within the level of ordinary skill in the art. Therefore, it would have been an obvious matter of design choice to decrease the length, i.e., the depth, of the distal segment **28** so that the proximal segment will have a length greater than or equal to 1.5 times the length of the distal segment **28** since such a modification would have involved a mere change in the size of a component. *In re Rose*, 105 USPQ 237 (CCPA 1955).

### ***Response to Arguments***

Applicants' arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

With respect to Carlson, applicants argue that the problem to be solved is quite different than in the present invention. In response, it should be noted that problems to be solved are not patentable but rather the structural features of the claimed invention. The fact that it operates differently or that it solves other problems is irrelevant when Carlson meets the structural features of the claimed invention. Further, isn't the

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problem described in the specification already solved by so many? Okudera et al., 6,824,349, and the Japanese patent, JP8-114196 are examples that solve the same problem.

### ***Conclusion***

Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. The recitation ""comprising" in claim 1, line 2 necessitated the new grounds of rejection because the coaxial annular flange, the tapped holes, the through holes and the screws are added as part of the claimed invention. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 571-282-7083. The examiner can normally be reached from 9:30-6:00. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached at 571-272-7087.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
E.G.

May 23, 2007

Attachment: one marked-up page of Potts, 2,748,578  
one marked-up page of Carlson, 2,560,413



DANIEL P. STODOLA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3800

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Carlson, 2,560,413

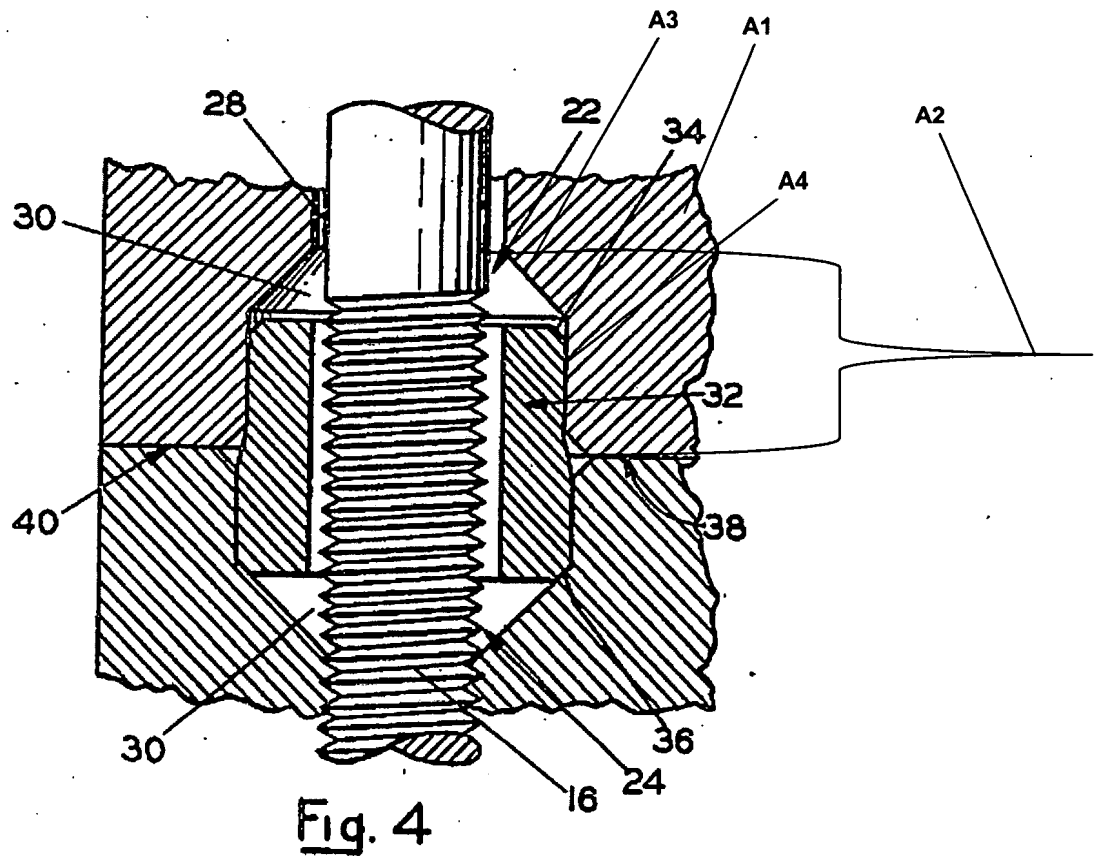


FIG. 1

